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5 easy ways to **Turn Down the Noise**

Here are five simple solutions for reducing the noise in your shop.

When it comes to working with power tools, noise is a fact of life. But it's more than just a minor annoyance — long-term exposure to the noise from power tools can cause hearing loss. The first line of defense is good hearing protection, like a set of earmuffs or earplugs. But here are a few other simple solutions for turning down the volume in your shop.

1 Enclose the Tool

One of the simplest ways to deal with a loud tool is to contain the noise by enclosing it in a cabinet or stand. This works great for shop vacuums, air compressors, or router tables (photo above).

The enclosure doesn't have to be anything elaborate, as long as

it seals out as much of the sound as possible. MDF and plywood are both good choices for building enclosures because they're dense and heavy, which helps absorb sound waves and vibrations.

Note: Most tools require a source of ventilation in order to prevent

heat build-up within the motor. So make sure that you don't seal off the tool completely.

Adding extra weight (like a bag of sand or some concrete blocks) to the bottom of the enclosure acts as an anchor to further aid in reducing noise and vibration.

2 Reduce Vibration

When it comes to stationary, belt-driven power tools, vibration is one of the biggest contributing factors to noise. The first step in reducing vibration is to make sure the pulleys are aligned and securely attached to their shafts.

If this doesn't alleviate the problem, try replacing the stock V-belt and die-cast pulleys with a link belt and machined steel

pulleys, like those shown at right. These components run smoother than the ones that most likely came with your tool and they can greatly reduce the amount of vibration.



3 Muffle the Noise

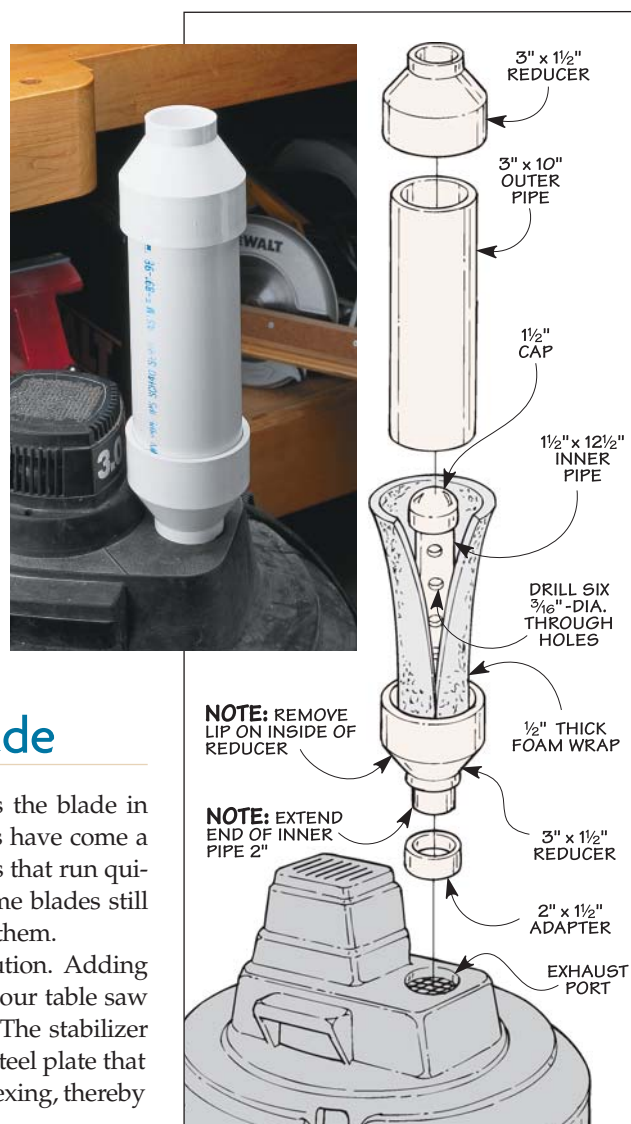
If you were to make a list of the tools that are the worst noise offenders, the shop vacuum would rank near the top.

But if your shop vacuum has an exhaust port that will accept a hose, you can make a muffler that will cut the noise level almost in half. The muffler is nothing more than insulation foam housed in a PVC pipe and fitting assembly (drawing at right).

The concept of the muffler is simple. A layer of flexible foam insulation fits between the walls

of an inner and outer pipe. The smaller inner pipe is drilled with several holes and then capped. This way, air from the vacuum is expelled through the holes and then passed into the foam. The foam dampens the sound, and then the air is forced out through a reducer at the top of the muffler.

I assembled the muffler using PVC cement. Then to fit the muffler into the exhaust port of my shop vacuum, I used a simple adapter fitting around the inner pipe, like the one shown in the drawing.



4 Stabilize the Blade

Another common source of noise is the blade in your table saw. Blade manufacturers have come a long way as far as developing blades that run quieter and with less vibration. But some blades still seem to have an ear-piercing ring to them.

Fortunately, there's a simple solution. Adding a blade stabilizer (photo at left) to your table saw can help quiet down a noisy blade. The stabilizer is nothing more than a flat, ground-steel plate that stiffens the blade to prevent it from flexing, thereby cancelling out much of the noise.

5 Isolate the Noise

Even though there are ways to minimize tool vibration, it's nearly impossible to eliminate it altogether. So in some cases, the next best thing is to simply isolate the vibration before it's transferred to the tool stand. There are a couple of ways you can do this.

The first method is to use isolation mounts. These are simply hard rubber cylinders that have either a threaded stud or a threaded hole at either end. The mounts are placed in between the tool and the stand, as shown in the first photo at right.

What makes these mounts work is the fact that the mounting bolts thread into each end, rather than

passing all the way through the mount. So they act like mini-shock absorbers to cushion the tool against vibration.

Another way to isolate vibration is to use an anti-vibration pad. Typically, this is just a thin piece of rubber or neoprene that is sandwiched between the tool and the stand. The pad can be

cut out to match the profile of the tool (right photo below). Or you can cut strips of the material to fit between the frame of a motor and the mounting plate. 